

SOUTHEAST UNITED STATES HURRICANE EVACUATION TRAFFIC STUDY
Evacuation Travel Demand Forecasting System
Training Document

Prepared for
Federal Emergency Management Agency
and
United States Department of Transportation

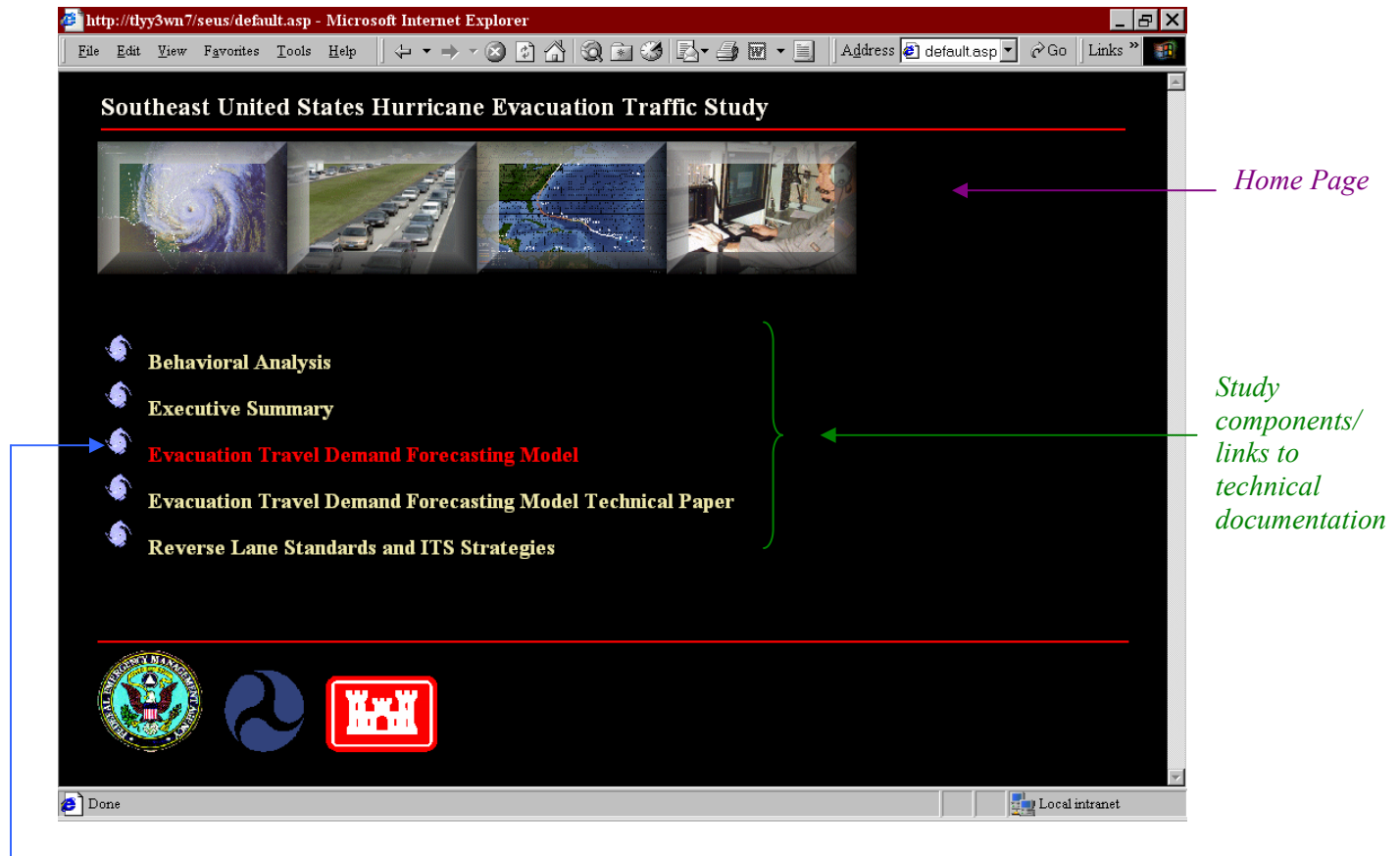
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August 2000

090855.00

Accessing the Travel Demand Forecasting System

The program may be accessed over the Internet. The WEB address for the home page is www.fematdfm.com. Once at the home page menu, select the **Evacuation Travel Demand Forecasting Model** link to enter the program.



Select the Evacuation Travel Demand Forecast System link

Once the *Evacuation Travel Demand Forecasting System* link is selected a log-in screen will appear. Using the pull down menu select the user name. The user name are listed by agency or state. The passwords have been established and will be distributed to each agency or state. Lastly, click on the Login button to enter the program.

http://tlyy3wn7/seus/TDFSLogin.asp - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Address SLogin.asp Go Links

Welcome

Please select User Name and Enter Password:

USER NAME: FEMA ROC

PASSWORD:

Login

User Name and Password

Login button

Once there is a successful log in, the main map screen will appear. This is the screen from which the application is driven. The map displayed on this screen will show those counties whose data has been committed by storm category (category of storm is based on inputted information). Also, roadway volumes will be displayed based on congestion levels. A legend to the right of the map describes the colors displayed on the map.

Select State and County

Menu Buttons

Legend

Legend

COUNTIES	EVACUATION ROUTES
Category 1	No
Category 2	Congestion Light
Category 3	Congestion Moderate
Category 4	Congestion Heavy
Category 5	Congestion Extreme
No	
Evacuation	

Zoom In Zoom Factor: 2X 4X 6X

Done Local intranet

Entering Evacuation Variables as Inputs

Each county must commit data for the model to forecast traffic volumes. The data are committed using the *County Variable* menu button. The button is only available once a county is selected on the main map screen map.

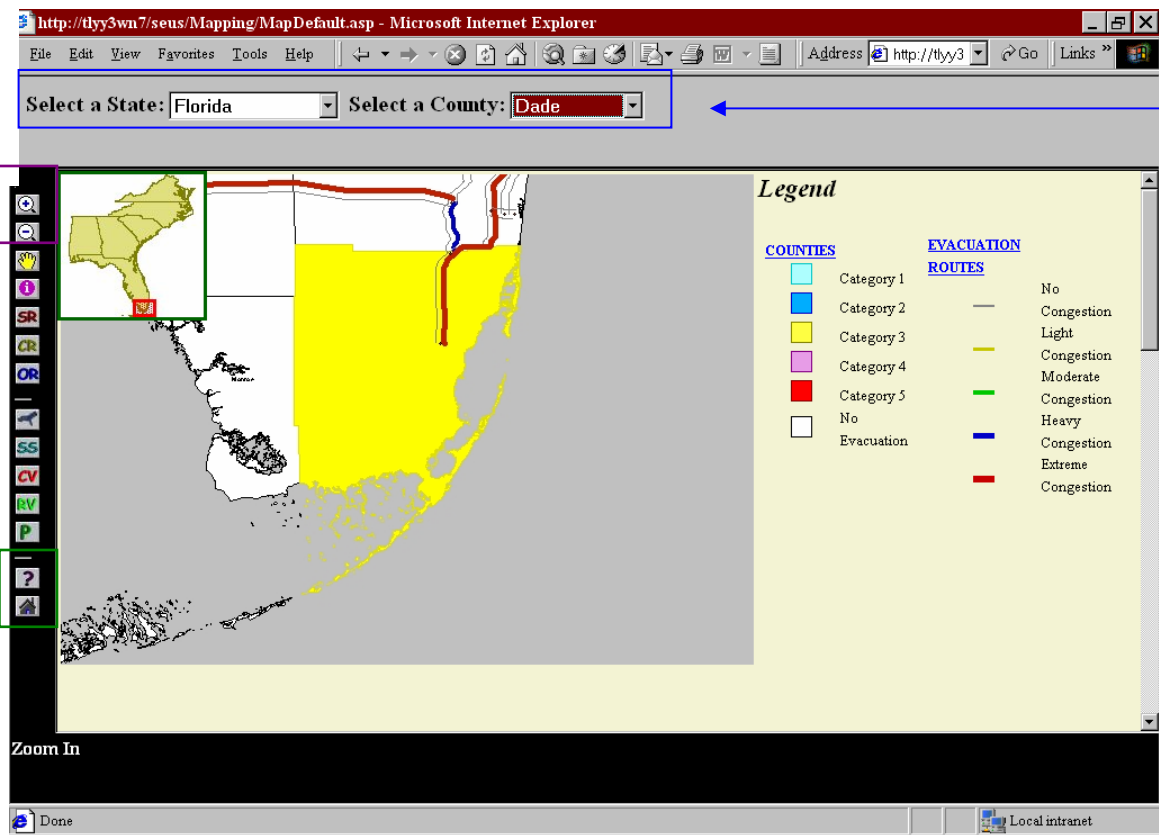
There are two ways to select a county. One is to select a state of interest and a county from the pull down menu on the upper left hand side of the screen. The second way is to select a county by using the *Zoom In* and *Zoom Out* function on the right hand side of the screen. Click on *Zoom In* and then click on the county of choice on the map. This process is continued until a desired viewing level is reached. A *Help* button is available at all times that links to this User's Manual. Also, the *Home* button is a link back to the home page.

Zoom In and Zoom Out may also be used to select a county

County Variables

Help and Home buttons

Select State and County from pull down menu



Once a county has been selected it is highlighted in yellow. Also, the *County Variables* menu button is available. Select *County Variables* from the menu bar to enter data to commit a county.

The *County Variables* screen allows for county data to be committed. The state and county selected are listed on the left side of the screen for reference.

Evacuation Variables

State: FL County: Dade

Storm Category: Category 5 Participation Rate: 100% Tourist Occupancy Levels: HIGH

For Reference:

	Low	Medium	High
Category 1	0	45,000	50,000
Category 2	40,000	45,000	50,000
Category 3	90,000	95,000	100,000
Category 4	160,000	170,000	180,000
Category 5	160,000	170,000	180,000

NOTE: Values on the Right MUST Total 100%

County Evacuation Variables

County Variables

Describes state and county for which information may be input

The first input variable category of storm. Select the category of storm for which an area is evacuating.

http://tlyy3wn7/seus/Mapping/MapDefault.asp - Microsoft Internet Explorer

Select a State: Select a County:

Evacuation Variables

State: **FL** Commit County For Evacuation

County: **Dade**

Storm Category:

Participation Rate:

Tourist Occupancy Levels:

For Reference:

	Low	Medium	High
County Evacuation Variables	00	45,000	50,000
Category 2	40,000	45,000	50,000
Category 3	90,000	95,000	100,000
Category 4	160,000	170,000	180,000
Category 5	160,000	170,000	180,000

NOTE: Values on the Right MUST Total 100%

I-9 / 26 west of Birmingham to Mississippi	0	SW Florida / FT Myers	8
Greenville /Spartanburg Area	0	Charlotte / Western NC	0
NC I-95 North Towns/ Rocky Mount	0	168 Curritik to Virginia	0
I-95 - to Virginia	3	Macon Area	5
I-58 Northeast of Birmingham to Tennessee	0	SE Florida	0
Atlanta Area	5	US 17 Noth of Elizabeth City to Virginia	0
Kentucky	5	Tampa Bay Area	7
NE Florida / Jacksonville	15	Aiken / Augusta GA	0
Florence Area	0	I-40 west of Asheville to Tennessee	0
Ft Pierce / West Palm Area	0	Ocala / Gainesville/ N Central FL	15
NC I-95 South Towns / Favetteville	0	Savannah Area	0

County Evacuation Variables

Select from Category 1 through 5 based on type of evacuation

The second input is the participation rate. The participation rate refers to the compliance rate for the percent of the population that is actually believed to be evacuating.

http://tlyy3wn7/seus/Mapping/MapDefault.asp - Microsoft Internet Explorer

Select a State: Select a County:

Evacuation Variables

State: FL Commit County For Evacuation

County: Dade

Storm Category:

Participation Rate:

Tourist Occupancy Levels:

For Reference:

	Low	Medium	High
County Evacuation Variables	00	45,000	50,000
Category 2	40,000	45,000	50,000
Category 3	90,000	95,000	100,000
Category 4	160,000	170,000	180,000
Category 5	160,000	170,000	180,000

NOTE: Values on the Right MUST Total 100%

Area	Value	Area	Value
I-59 / 20 west of Birmingham to Mississippi	0	SW Florida / FT Myers	8
Greenville / Spartanburg Area	0	Charlotte / Western NC	0
NC I-95 North Towns/ Rocky Mount	0	168 Curritik to Virginia	0
I-95 - to Virginia	3	Macon Area	5
I-58 Northeast of Birmingham to Tennessee	0	SE Florida	0
Atlanta Area	5	US 17 Noth of Elizabeth City to Virginia	0
Kentucky	5	Tampa Bay Area	7
NE Florida / Jacksonville	15	Aiken / Augusta GA	0
Florence Area	0	I-40 west of Asheville to Tennessee	0
Ft Pierce / West Palm Area	0	Ocala / Gainesville/ N Central FL	15
NC I-95 South Towns / Favetteville	0	Savannah Area	0

County Evacuation Variables

Select participation rate from pull-down menu

The third input *County Variable* is tourist occupancy. Low, medium or high must be selected based on the current tourist occupancy of an area. A reference table is list below showing for a particular county the difference between low, medium, and high occupancy.

http://tlyy3wn7/seus/Mapping/MapDefault.asp - Microsoft Internet Explorer

Select a State: Select a County:

Evacuation Variables

State: **FL** Commit County For Evacuation

County: **Dade**

Storm Category:

Participation Rate:

Tourist Occupancy Levels:

For Reference.

	Low	Medium	High
County Evacuation Variables	0	45,000	50,000
Category 2	40,000	45,000	50,000
Category 3	90,000	95,000	100,000
Category 4	160,000	170,000	180,000
Category 5	160,000	170,000	180,000

NOTE: Values on the Right MUST Total 100%

Commit County For Evacuation	SW Florida / FT Myers	Charlotte / Western NC	168 Curritik to Virginia	Macon Area	SE Florida	US 17 Noth of Elizabeth City to Virginia	Tampa Bay Area	Aiken / Augusta GA	I-40 west of Asheville to Tennessee	Ocala / Gainesville/ N Central FL	Savannah Area
I-59 / 20 west of Birmingham to Mississippi	8	0	0	5	0	0	7	0	0	15	0
Greenville /Spartanburg Area	0	0	0	0	0	0	0	0	0	0	0
NC I-95 North Towns/ Rocky Mount	0	0	0	0	0	0	0	0	0	0	0
I-95 - to Virginia	3	0	0	0	0	0	0	0	0	0	0
I-58 Northeast of Birmingham to Tennessee	0	0	0	0	0	0	0	0	0	0	0
Atlanta Area	5	0	0	0	0	0	0	0	0	0	0
Kentucky	5	0	0	0	0	0	0	0	0	0	0
NE Florida / Jacksonville	15	0	0	0	0	0	0	0	0	0	0
Florence Area	0	0	0	0	0	0	0	0	0	0	0
Ft Pierce / West Palm Area	0	0	0	0	0	0	0	0	0	0	0
NC I-95 South Towns / Fayetteville	0	0	0	0	0	0	0	0	0	0	0

Select Tourist Occupancy level

Reference table showing differences between low, medium, and high tourist occupancy

A final input for *County Variables* are destination percentages. Sets of default destination percentages have been established for each county. Even though these variables may be edited, it is highly discouraged. These destination percentages have been established based on behavioral analyses.

http://tlyy3wn7/seus/Mapping/MapDefault.asp - Microsoft Internet Explorer

Select a State: Select a County:

Evacuation Variables

State: **FL**
 County: **Dade**
 Storm Category:
 Participation Rate:
 Tourist Occupancy Levels:
 For Reference:

	Low	Medium	High
County Evacuation Variables	00	45,000	50,000
Category 2	40,000	45,000	50,000
Category 3	90,000	95,000	100,000
Category 4	160,000	170,000	180,000
Category 5	160,000	170,000	180,000

NOTE: Values on the Right MUST Total 100%

Commit County For Evacuation			
I-59 / 20 west of Birmingham to Mississippi	0	SW Florida / FT Myers	8
Greenville /Spartanburg Area	0	Charlotte / Western NC	0
NC 1-95 North Towns/ Rocky Mount	0	168 Curritik to Virginia	0
I-95 - to Virginia	3	Macon Area	5
I-58 Northeast of Birmingham to Tennessee	0	SE Florida	0
Atlanta Area	5	US 17 Noth of Elizabeth City to Virginia	0
Kentucky	5	Tampa Bay Area	7
NE Florida / Jacksonville	15	Aiken / Augusta GA	0
Florence Area	0	I-40 west of Asheville to Tennessee	0
Ft Pierce / West Palm Area	0	Ocala / Gainesville/ N Central FL	15
NC I-95 South Towns / Fayetteville	0	Savannah Area	0

County Evacuation Variables

Local intranet

Destination Percentages

Once the necessary *County Variables* have been entered, the county data may be committed. A button labeled *Commit County for Evacuation* may be clicked on and the application will then apply the variables to the roadway network. These variables may be changed at any time. The user may return to this screen and reselect the input variables. Once *Commit County for Evacuation* is chosen, the model will recalculate roadway congestion based on the new information.

Evacuation Variables

State: **FL** County: **Dade**

Storm Category: **Category 5**

Participation Rate: **100%**

Tourist Occupancy Levels: **HIGH**

For Reference:

	Low	Medium	High
County Evacuation Variables	00	45,000	50,000
Category 2	40,000	45,000	50,000
Category 3	90,000	95,000	100,000
Category 4	160,000	170,000	180,000
Category 5	160,000	170,000	180,000

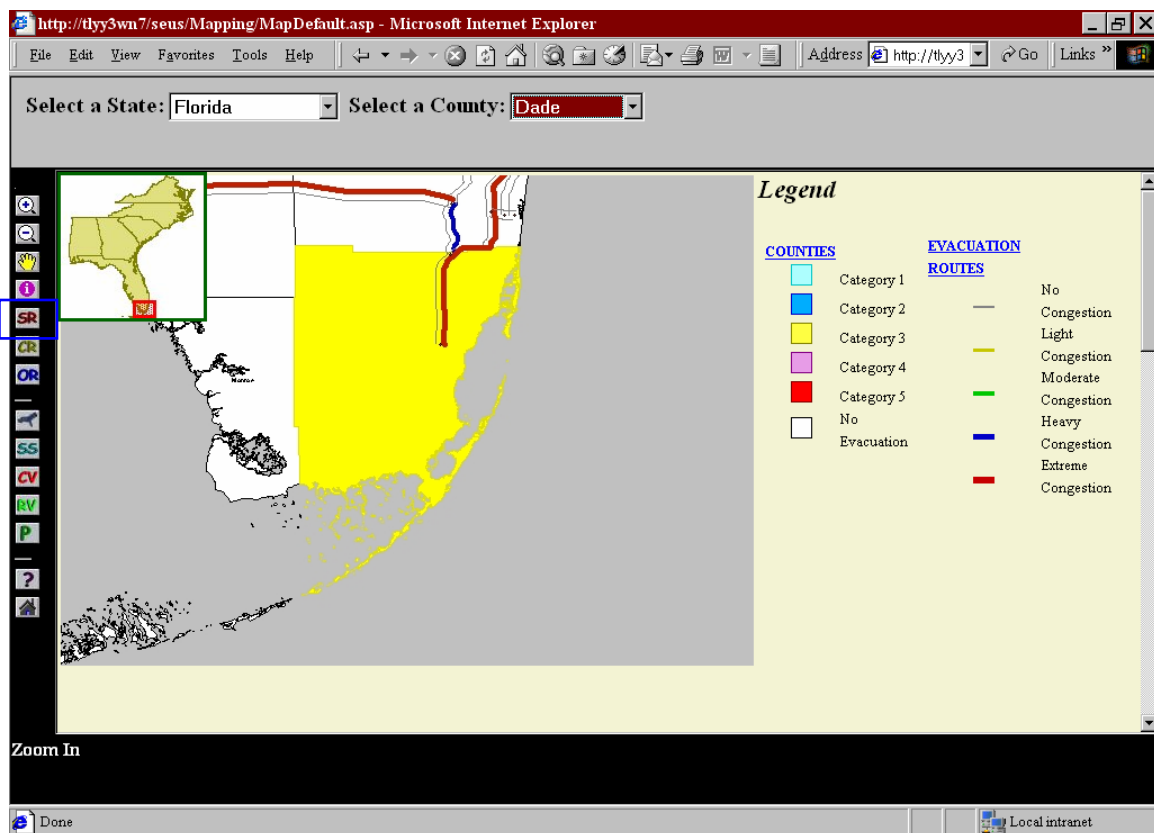
NOTE: Values on the Right MUST Total 100%

I-59 / 20 west of Birmingham to Mississippi	0	SW Florida / FT Myers	8
Greenville /Spartanburg Area	0	Charlotte / Western NC	0
NC 1-95 North Towns/ Rocky Mount	0	168 Curritik to Virginia	0
I-95 - to Virginia	3	Macon Area	5
I-58 Northeast of Birmingham to Tennessee	0	SE Florida	0
Atlanta Area	5	US 17 Noth of Elizabeth City to Virginia	0
Kentucky	5	Tampa Bay Area	7
NE Florida / Jacksonville	15	Aiken / Augusta GA	0
Florence Area	0	I-40 west of Asheville to Tennessee	0
Ft Pierce / West Palm Area	0	Ocala / Gainesville/ N Central FL	15
NC I-95 South Towns / Fayetteville	0	Savannah Area	0

Commit County For Evacuation

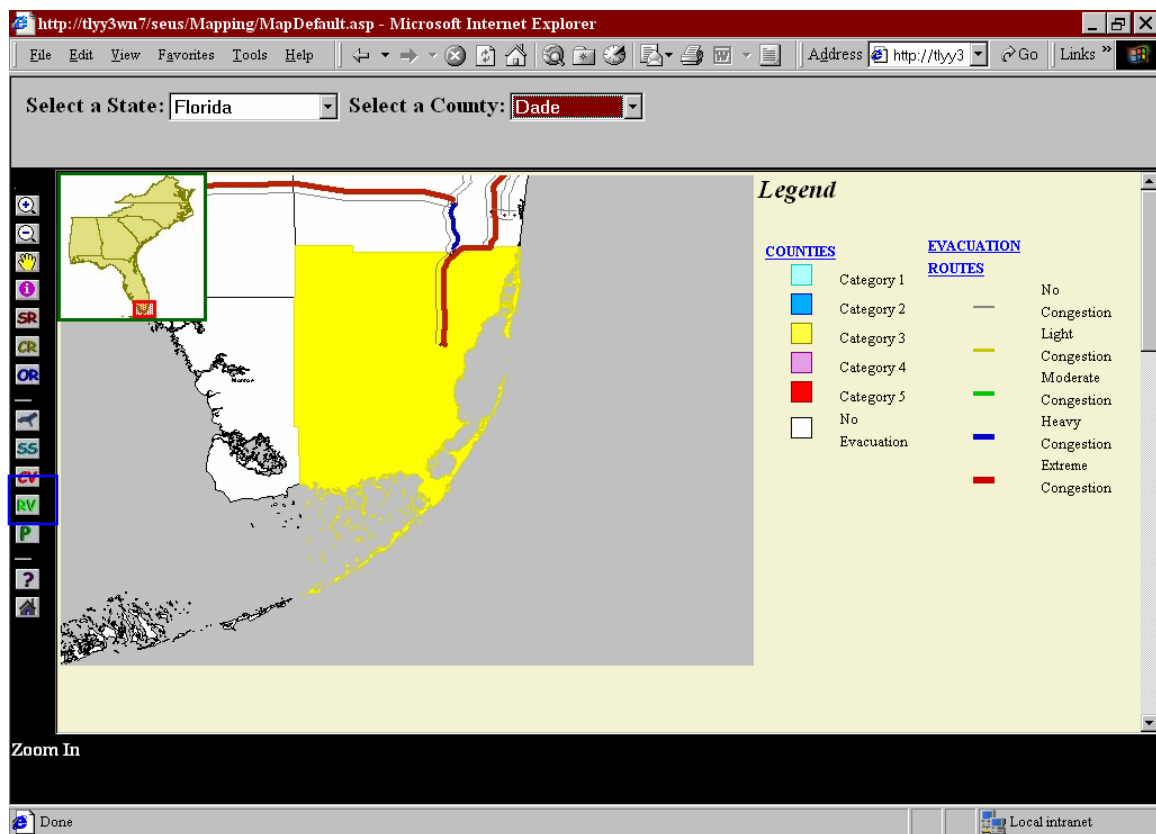
Commit County data that has been entered

If a county needs to be uncommitted at any time, No Storm should be selected from the Storm Category pull-down menu. The model will then recalculate traffic volumes based on the new information.



Once the route is selected, the *Route Variables* button is available on the menu bar. Select the *Route Variables* button to go to the editing screen.

*Route
Variables
button*



Once in the *Route Variables* screen, two variables may be edited and one added. To edit variables, select the *Edit Route Information* at the bottom left side of the screen.

http://tlyy3wn7/seus/Mapping/MapDefault.asp - Microsoft Internet Explorer

Select a State: Florida Select a County: Broward

Route Variables

Congestion:	0	Model Estimated Volume:	0
Description:	I 75 Alligator Alley - Eastbound	State:	FL
Facility:	F	Lanes:	2 <input type="text" value="2"/>
Service Volume / Capacity:	3000 <input type="text" value="3000"/>	Traffic Count:	0 <input type="text" value="0"/>
		Accumulate Traffic Count:	0 <input type="text" value="0"/>

Edit Route Information

Edit route information

Route Variables

Done Local intranet

Once *Edit Route Information* is selected, three fields may be edited. One is the service volume/capacity. This allows the user to increase or decrease capacity on the roadway segment. Also, directional number of lanes may be changed. The variable that may be added is traffic count. Every time a traffic count is added, the accumulated traffic count field will keep track of the total traffic count since the first entry.

http://tlyy3wn7/seus/Mapping/MapDefault.asp - Microsoft Internet Explorer

Select a State: Select a County:

Route Variables

Congestion:	0	Model Estimated Volume:	0
Description:	I 75 Alligator Alley - Westbound	State:	FL
Facility:	F	Lanes:	2 <input type="text" value="2"/>
Service Volume / Capacity:	3000 <input type="text" value="3000"/>	Traffic Count:	0 <input type="text" value="0"/>
		Accumulate Traffic Count:	0 <input type="text" value="0"/>

Commit Route Information (points to Commit Route Information button)
Change Service volume/capacity (points to Service Volume / Capacity input)
Change directional number of lanes (points to Lanes input)
Add traffic count data (points to Traffic Count input)

Route Variables

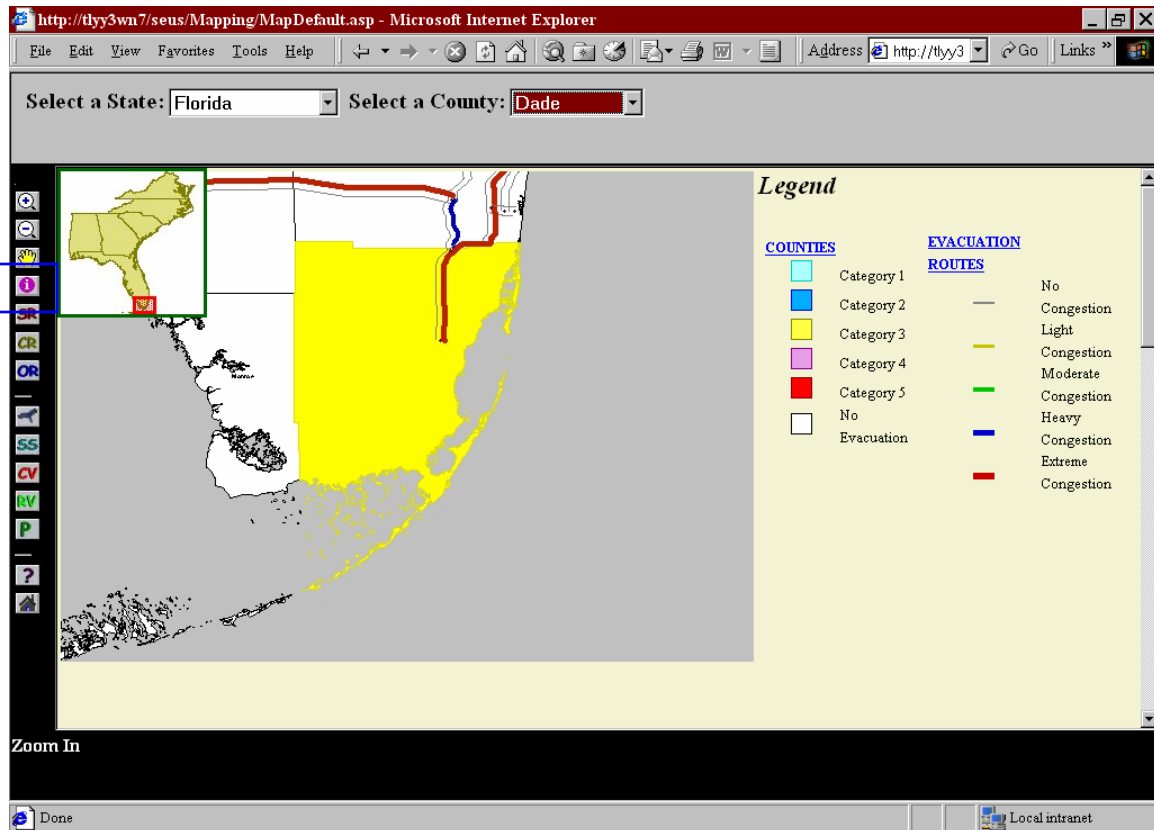
Local intranet

Once the variables have been entered, the new route information may be committed by selecting the *Commit Route Information*. The impact of the changes may be viewed on the main map screen by selecting the Map button on the menu bar. If the original values need to be restored, a *Restore Route Values* is available. This option will restore the default values at any time no matter how many changes have been made.

Analyzing Output

There are several ways to analyze output. One is to view the data that has been committed. This may be done from the main map screen. This screen will display the counties that have been committed and the roadway congestion. A legend is to the right of the map. Select the *Identify* button and then the county for which the data is to be viewed.

Select
Identify
option



The screen will display the data for the selected county.

Counties

NAME: **Broward** STORM CATEGORY: **1**

PARTICIPATION RATE: **10%** TOTAL EVACUATING VEHICLES: **3,000**

TOURIST OCCUPANCY LEVEL: **LOW**

Destinations

Location	Evacuating Vehicles
SW Florida / FT Myers	240
Virginia	150
Macon Area	150
Atlanta Area	150
Tampa Bay Area	210
NE Florida / Jacksonville	450
Tennessee	150
Ocala / Gainesville/ N Central FL	450
Orlando / Space Coast Area	750
Valdosta Area	150
Tallahassee Area	150
	3,000

*Input data
summary for
selected
County*

*Destinations
for selected
County and
number of
evacuating
vehicles*

If route information is also desired, then a route must be selected. The number of routes that are included in the *Identify* report depends on how far the zoom is extended.

Evacuation Routes

STATE:	FL	DESCRIPTION:	I 95 Volusia County
MODEL ESTIMATED VOLUME:	72,413	CONGESTION:	Extreme Congestion
SERVICE VOLUME:	3,000	DIRECTIONAL LANES:	2
TRAFFIC COUNT:	0	ACCUMULATED COUNT:	0

Counties

NAME:	Volusia	STORM CATEGORY:	3
PARTICIPATION RATE:	75%	TOTAL EVACUATING VEHICLES:	29,250
TOURIST OCCUPANCY LEVEL:	LOW		

Destinations

Location	Evacuating Vehicles
Macon Area	585
Atlanta Area	1,463
Tampa Bay Area	2,925
NE Florida / Jacksonville	4,388
Tennessee	585
Ocala / Gainesville/ N Central FL	2,925

Selected
route
output

State to State Data

Another output available is State to State data. The *State to State* button is located on the menu bar of most screens. Once the *State to State* button is selected, a table will show the total evacuating traffic volumes crossing state lines. This information will be for all counties with committed data.

State to State Button

http://tlyy3wn7/seus/Mapping/MapDefault.asp - Microsoft Internet Explorer

Select a State: Select a County:

Legend

COUNTIES		EVACUATION ROUTES	
<input type="checkbox"/> Category 1		<input type="checkbox"/> No	
<input type="checkbox"/> Category 2		<input type="checkbox"/> Congestion	
<input type="checkbox"/> Category 3		<input type="checkbox"/> Light	
<input type="checkbox"/> Category 4		<input type="checkbox"/> Congestion	
<input type="checkbox"/> Category 5		<input type="checkbox"/> Moderate	
<input type="checkbox"/> No		<input type="checkbox"/> Congestion	
<input type="checkbox"/> Evacuation		<input type="checkbox"/> Heavy	
		<input type="checkbox"/> Extreme	
		<input type="checkbox"/> Congestion	

Zoom In

Done Local intranet

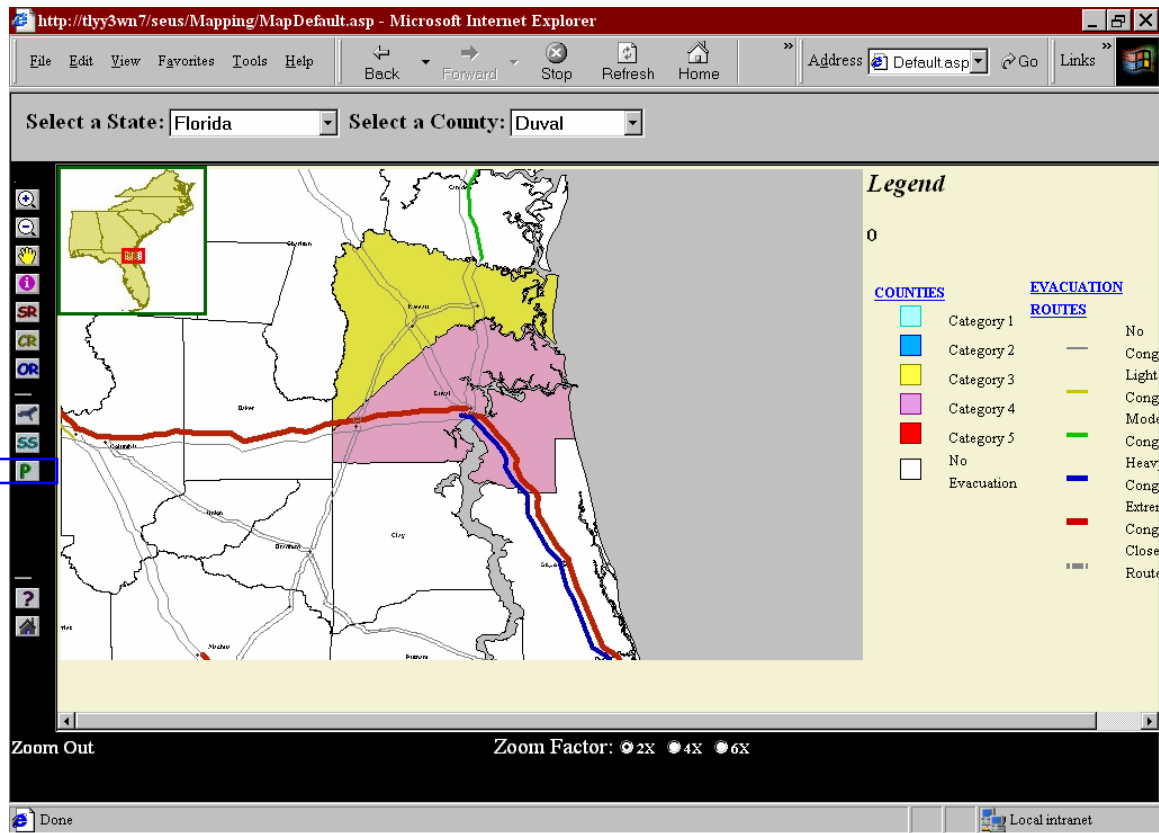
The State to State data table shows directional traffic volumes for all roadway segments that cross state lines in the model.

State to State Traffic - Microsoft Internet Explorer			
<div> File Edit View Favorites Tools Help Back Forward Stop Refresh Home Address http://tlyy3 Go Links </div>			
Estimated State to State Traffic			
<u>Alabama to Georgia</u>		<u>Alabama to Florida</u>	
US 84 West of US 19 - Eastbound	0	87 North of I 10 - Southbound	0
I 59 Northeast of Birmingham - Eastbound	0	I 10 Baldwin County - Eastbound	0
I 20 East of Birmingham - Eastbound	0	113 South of I 65 - Southbound	0
I 85 West of Georgia State Line - Eastbound	0	US 231 South of Dothan - Southbound	50,178
		US 331 South of Montgomery - Southbound	0
	0		50,178
<u>Alabama to Mississippi</u>		<u>Florida to Alabama</u>	
US 98	0	I 10 Baldwin County - Westbound	0
I 10	0	85 North of I 10 - Northbound	0
		US 331 South of Alabama State Line - Northbound	0
		US 231 South of Alabama State Line - Northbound	0
		US 29 North of I 10 - Northbound	0
		87 North of I 10 - Northbound	0
			0
<u>Florida to Georgia</u>		<u>Georgia to Alabama</u>	
US 19 South of Georgia State Line - Northbound	0	I 85 East of Georgia State Line - Westbound	64,182
US 319 North of I 10 - Northbound	0	US 84 West of US 19 - Westbound	0
I 75 South of Georgia Line - Westbound	197,870	I 20 West of Atlanta - Westbound	0
Done Local intranet			

Plotting

Plotting is a capability that allows for hard copies of the data to be produced for analysis. The map on the main map screen may be plotted at anytime using the *Plotting* button on the menu bar. The map in the view will be plotted as is.

*Plotting
menu button*



Once the *Plotting* button has been selected, two inputs are necessary. One is to select the plot size/paper size. The second is to input a title.

The screenshot shows a Microsoft Internet Explorer window with the address bar displaying `http://tlyy3wn7/seus/Mapping/MapDefault.asp`. The browser's menu bar includes File, Edit, View, Favorites, Tools, and Help. The toolbar contains Back, Forward, Stop, Refresh, Home, and a search icon. The address bar shows "Address" with a dropdown menu set to "Default.asp", a "Go" button, and a "Links" button.

Below the browser window, the application interface is visible. It features two dropdown menus at the top: "Select a State:" with "Florida" selected, and "Select a County:" with "Duval" selected. The main content area has a yellow background and contains the following elements:

- A section titled "Select a Plot Size:" with a dropdown menu showing "8.5 X 11".
- A section titled "Enter a Title for Plot...." with a text input field containing "Sample Plot".
- A "Create the Plot" button located below the title input field.

On the left side of the main content area, there is a vertical toolbar with several icons, including a magnifying glass, a hand, a printer, and a home icon. At the bottom of the application area, there is a black bar with the word "Plotting" in white text. The browser's status bar at the very bottom shows "Done" and "Local intranet".

The plot will include the legend that is on the main map screen.

